

IN THE CLAIMS:

Please cancel claims 2-3, 5-7, 10-11 and 13-15 without prejudice or disclaimer, and amend claims 1, 4, 9 and 12 as follows:

1. (Currently Amended) A file replication method for creating, in a distributed file system including a plurality of network storage apparatus and a replication system each connected to a network, the replication system having a management table for managing attribute information of all files and all directories in a first network storage apparatus as a replication source, a partial copy of data stored in the first network storage apparatus into a second network storage apparatus as a replication destination, said method comprising the steps of:

preliminarily recording replication information indicating whether or not each of the files and the directories stored in said first network storage apparatus is an object to be copied in said replication system;

preliminarily examining whether or not each of files and directories, that is indicated as an object to be copied, in said first network storage apparatus and each of copied files and directories maintain consistency, and setting a synchronization flag to each of files and directories which is proved to be consistent with a copy thereof;

receiving a file access request from a client;

judging ~~whether or not that~~ a replicating operation should be performed with execution of said file access request ~~by using said management table and said replication information~~ under conditions that said file access request is an updating file access request and that an access target of said file access request is a file or a directory which is indicated as an object to be copied and to which the synchronization flag is set;

simultaneously transferring, if a result of said judgment is such that the replicating operation should be performed, said updating file access request to said first network storage apparatus and to said second network storage apparatus;

collecting from said first network storage apparatus and from said second network storage apparatus responses to the updating file access request and making the collected responses into one response indicating that the updating file access request is done; and

sending said one response to the client.

- 2-3. (Cancelled)

4. (Currently Amended) A replication system for performing file replication between a plurality of network storage apparatus connected to a network, said replication system comprising:

a management table for managing attribute information of all files and directories in a network storage apparatus as a replication source;

a unit for holding replication information indicative of whether or not replication should be performed;

a unit for preliminarily examining whether or not each of files and directories, that is indicated as an object to be copied, in said network storage apparatus and each of copied files and directories maintain consistency;

a unit for setting a synchronization flag to each of files and directories which is proved to be consistent with a copy thereof;

~~a unit for holding preliminarily recorded replication information indicating whether or not each of the files and the directories stored in said network storage apparatus is an object to be copied;~~

a request reception unit for receiving, a file access request from a client;
[[and]]

~~a replication unit for simultaneously transferring the file access request to the plurality of network storage apparatus, said replication unit including~~

a judgment unit for judging ~~whether or not that~~ replication should be performed with execution of said file access request ~~by using the management table and the replication information~~ under conditions that said file access request is an updating file access request and that an access target of said file access request is a file or a directory which is indicated as an object to be copied and to which the synchronization flag is set;

a request processing unit for simultaneously transferring, in accordance with a result of the judgment, the updating file access request to the network storage apparatus as the replication source and to another network storage apparatus as a replication destination;

a collecting unit for collecting from said network storage apparatus and said another network storage apparatus responses to the updating file access request and making the collected responses into one response indicating that the updating file access request is done; and

a response transmitting unit for sending said one response to the client.

5-7. (Cancelled)

8. (Previously Presented) A replication system according to claim 4, wherein said replication information is at least one rule indicating that a file having a specified user or group identifier, a file belonging to a specified directory, or a file having a specified file identifier as an object to be copied as preliminarily recorded.

9. (Currently Amended) A file replication method for creating, in an external network storage, a partial copy of data stored in a virtualized-and-unified file system including a plurality of network storages and a unification virtualizing system for managing, in a unified manner, a structure of files and directories present in distributed relation in the network storages and attribute information thereof and allowing a unified access to the network storages from an outside, said method comprising the steps of:

~~preliminarily recording, in said unification virtualizing system, replication information specifying the file as a target of replication;~~

preliminarily recording, in said unification virtualizing system, replication information indicating whether or not each of the files and the directories stored in one of said [[first]] network storages ~~apparatus~~ is an object to be copied;

preliminarily examining whether or not each of files and directories, that is indicated as an object to be copied, in said network storage and each of copied files and directories maintain consistency, and setting a synchronization flag to each of files and directories which is proved to be consistent with a copy thereof;

receiving, in a unified manner, a file access request from a client to said virtualized-and-unified file system;

specifying the network storage storing therein the file as a target of said file access request by using a mapping unit for determining and setting the network storage for each of the files;

judging, by using said replication information, ~~whether or not that~~ a replicating operation should be performed with execution of said file access request under conditions that said file access request is an updating file access request and that an access target of said file access request is a file or a directory which is indicated as an object to be copied and to which the synchronization flag is set;

transferring said file access request to the specified network storage and, if a result of said judgment is such that the replicating operation should be performed, transferring the updating file access request also to the external network storage as a replication destination, and thereby causing each of the network storage storing therein said target file and the external network storage as the replication destination to execute a file access requested by the file access request;

collecting from said specified network storage and said external storage responses to the updating file access request and making the collected responses into one response indicating that the updating file access request is done; and

sending said one response to the client.

10-11. (Cancelled)

12. (Currently Amended) A unification virtualizing system for a plurality of network storages, said system virtually showing the plurality of network storages connected to a network as a single file system and comprising:

a unified management directory for managing a structure of all files and directories present in said virtualized-and-unified file system and attribute information thereof;

~~a unit for holding replication information for specifying the file to be replicated by assuming that an external file system is a replication destination;~~

a unit for holding ~~preliminarily recorded~~ replication information indicating whether or not each of the files and the directories stored in one of said ~~[[first]]~~ network storages ~~apparatus~~ is an object to be copied into an external file system;

a unit for preliminarily examining whether or not each of files and directories, that is indicated as an object to be copied, in said network storage and each of copied files and directories maintain consistency;

a unit for setting a synchronization flag each of files and directories which is proved to be consistent with a copy thereof;

a request reception unit for receiving a file access request from a client;

a mapping unit for determining the network storage of a file access target of said file access request;

a judgment unit for judging ~~whether or not~~ that the file access target of said file access request should be replicated in said external file system ~~by using the~~

~~unified management directory and the replication information~~ under conditions that said file access request is an updating file access request and that an access target of said file access request is a file or a directory which is indicated as an object to be copied and to which the synchronization flag is set;

a request transfer unit for simultaneously transferring, if the judgment unit judges that replication should be performed, said updating file access request to the external file system as the replication destination and to the network storage determined by the mapping unit;

a collecting unit for collecting from said external file system and said network storage responses to the updating file access request and making the collected responses into one response indicating that the updating file access request is done; and

a response transmitting unit for sending said one response to the client.

13-15. (Cancelled)

16. (Original) A unification virtualizing system for a plurality of network storages according to claim 12, wherein said judgment unit judges that replication should not be performed if the file access request is a read request and the file access request is not transferred to the external file system as the replication destination.

17. (Original) A unification virtualizing system for a plurality of network storages according to claim 12, wherein said replication information is at least one rule indicating that a file having a specified user or group identifier, a file subordinate to a specified directory, or a file having a specified file identifier is an object to be copied.

18. (Original) A unification virtualizing system for a plurality of network storages according to claim 12, further comprising:

a unit for holding master information indicating that the files and directories managed by the unified management directory are masters, wherein

said judgment unit judges whether or not replication should be performed in accordance also with the master information.

19. (Original) A unification virtualizing system for a plurality of network storages according to claim 17, wherein said replication information includes not only the rule but also information for identifying the virtualized-and-unified file system to which the rule is applied.
- 20-21. (Cancelled)
22. (Original) A unification virtualizing system for a plurality of network storages according to claim 12, further comprising:
- a capacity management unit for periodically acquiring respective disk capacities and amounts of disk use of said virtualized-and-unified file system and said external file system as the replication destination and determining, from said disk capacities and amounts of disk use, a disk capacity and an amount of disk use which allow for replication.
23. (Previously Presented) A file replication method according to claim 1, wherein said replication information, which indicates whether or not each of the files and the directories stored in said first network storage apparatus is an object to be copied, was preliminarily set by an administrator and then recorded in said replication system..